



SYLLABUS

HORT 201 - Horticulture Science and Practices

David Wm. Reed - Instructor

Horticulture Forest Science Building, room 408

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e-mail: dwreed@tamu.edu

Course Web Site: hort201.tamu.edu

OFFICE HOURS: Setup one-on-one, either F2F or Zoom. Call or see me before or after class to find a time.

COURSE DESCRIPTION:

The course will cover the structure, growth and development of horticultural plants from a practical and scientific approach; environmental effects, basic principles of propagation, greenhouse and outdoor production, nutrition, pruning and chemical control of growth, pest control and branches of horticulture.

PREREQUISITES: Plant Biology or Botany preferred, but not required.

COURSE DESIGNATION: Science Core elective for all students; required for HORT major/minors.

LEARNING OUTCOMES

To recognize plant "architecture", both internal and external structure and form.

To understand of basic plant "function", especially photosynthesis, respiration and hormones.

To realize how plants can measure and interact with the environment interact.

To develop skills to "orchestrate" plant growth with hormones, pruning, nutrition, temperature, water and soil modification.

REQUIRED TEXT: *Horticulture - Science and Practices*, D.W. Reed, Pearson Custom Publ., Edina, MN. Available at the campus and some off campus bookstores. Also available on course web site. Must be brought to all lectures, or open on your computer.

OPTIONAL TEXT: *The Biology of Horticulture*, J.E. Preece and P.E. Read, latest edition, John Wiley & Sons, Inc., NY. The text is optional. Available at the campus bookstore and some off campus bookstores.

QUIZ FILE: Several old exams are posted online for you to download. I strongly suggest you look at the old exams, so you become familiar with the format and depth of questions.

VIDEO TAPES and REMOTE DELIVERY: All lectures will be Zoom recorded and posted online. Links are posted on the course website. Zoom lectures will not be live streamed.

LATE ARRIVALS AND DEPARTURES:

Lecture: I realize A&M is a very large campus. Reasonable late arrivals and early departures are ok. Enter/exit quietly and sit towards the back of the class. However, lecture will start and end on time.

Exams: Will start and end on time. Exams are taken in the classroom, but are taken online on your computer through Canvas. You must have a functional computer with WiFi. You can only take exams remote with permission, such as you are at home in mandatory quarantine. If you arrive late, you will have only the remaining time to take the exam and must explain why you are late. If something beyond your control delays your arrival, call my cell 979-777-2750 immediately. Make-up exams are granted only for University acceptable excuses.

CELLULAR PHONES: **It is not acceptable, appropriate, nor respectful to use your cell phone during class.** If your cell phone rings during class or if you answer a phone during class, you will be asked to turn it off, and if it becomes a distraction, you may be asked to leave the classroom.

ATTENDANCE: I do not take roll, but please attend class or watch the lecture; a lot of learning occurs from hearing/watching/experiencing lecture.

NOTIFICATIONS: Official University notification of all matters is through your Howdy email. I will use only your Howdy email. Make sure you check your Howdy email, or its alias, regularly.

GRADES AND GRADING POLICY: (also see <http://student-rules.tamu.edu/rule10>):

Grade Calculation

- Exams: There will be 5 100-point exams, your lowest grade will be dropped. Thus, your exam grade is based on a maximum total of 400 point
- Bonus Points: Will be added to the sum of your highest 4 exam grades.
 - Team Projects: Worth to 4 points for model/artifact and 4 points for video.
 - Individual Student Reflective Essay: Worth up to 4 bonus points.

Letter Grade: Your letter grade will be the letter equivalent of your numerical average based on the following 10-point scale.

Grading Scale: 10-point scale, A = 90-100, B = 80-89, C = 70-79, D = 60-69, F =< 59
 Note: The 12 bonus points can actually change your Grading Scale by 3 points, so A = 97-100, etc.

Final Grade: Your final grade will be this letter grade; there is no curve or outside/extra work for extra credit.

Grades Posted: On Canvas within 1 day for multiple choice exams, and within 3 days on the short answer questions, Team Projects and Reflective Essay.

Exams Returned: Exams are electronic and available for you to view on Canvas as posted for each exam.

GRADING SCHEMA

EXAMS – Multiple Choice and Core Competency questions*	
100 points	Exam 1
100 points	Exam 2
100 points	Exam 3
100 points	Exam 4
100 points	Final Exam
500 Points Total	
400 Points Max	Drop lowest grade; exam grade is highest 4 exam grades
TEAM and INDIVIDUAL PROJECTS – Bonus Points (up to 12 points)	
8 bonus points	Team Project Artifacts: 3D or Visual Communication Model (4 points) and Oral Communication Video (4 points)
4 bonus points	Reflective Essay: Individual Student Reflective Essay (4 points)
Numerical average: Sum of your highest 4 exam grades plus bonus points, divided by 4, and rounded to the next whole number	

HOW WILL EXAMS BE ADMINISTERED?

- Exams will be taken face-to-face in the classroom online on Canvas using your laptop computer or tablet. If access to a laptop or tablet is an issue, see me.
- You must login to Canvas You can have no other window open on your computer.
 - Exams will be proctored in the classroom and monitored using the Canvas Exam Log View feature.
 - If you have an excused absence, you may be granted permission to take the exam remotely. This must be arranged with the instructor ahead of time. You must have a computer with a camera and a reliable Wi-Fi connection. All make-up exams will be Zoom and Canvas proctored.

- Exams will be given during the normal lecture period, and on the dates posted on the course web site.
 - The exam will be timed by Canvas. The exam will open exactly at the normal start of lecture time and close exactly 1 hr 15 min later. If you arrive for the exam late, you must have a justified reason why. If you miss this time period, then you miss the exam. If something beyond your control causes you to be late, call my cell immediately at 979-777-2750 to notify me of the issue and we will discuss your situation.
 - You can only miss the exam and take a make-up for a University acceptable excuse. And, I must be notified as per the timeline in Student Rules. See the section on Make-Up Exams later in the Syllabus. Note: forgetting you had an exam or over-sleeping are not valid excuses.
 - Technical reasons are not a University acceptable excuse. You must have a reliable computer or tablet with a camera and reliable WiFi signal. You cannot take the exam on a cell phone. If for any reason you lose internet connection, see me or call my cell immediately 979-777-2750 to notify me of the issue.
- If you are given permission to take the exams remotely, it will be closed book, taken alone with no communication with anyone, on the honor system, and proctored by me on Canvas and Zoom. If you have a question during the exam, send a personal Chat to the Proctor.
- For students that have accommodations with **Student Resources**, see me and we will make arrangements based on your Approved Accommodations.

MAKE-UP EXAMS:

Read the Student Rules (<https://student-rules.tamu.edu/rule07/>) relative to excused absences and make-up exams. Make-up exams will be given only for acceptable University excuses as defined in Student Rules. As per Student Rules: *"The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for absence"*, which requires some type of written and approved excuse. And, *"to be excused the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g., accident, or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class. However, it is strongly advised to talk to me directly (in person or a phone call) to inform me of the absence - Why? So, I can confirm the validity of the absence and explain your options.* If possible, the make-up exam will be tentatively scheduled at the time I verify the excused absence. **Arrangements for make-up exams must be done directly with me, either in person or a phone call. I do not discuss arranging make-up exams via email or texting, unless it is an extraordinary situation.** Student Rules require that the make-up is *"to be completed within 30 calendar days form the last day of the absence"*. However, the exact time allowed for the make-up depends on the nature of the excused absence. My guidelines are: The student is given the number of days to make-up the exam equal to the number of working days of the excused absence, starting with the day of the exam. For excuses beyond a week, arrangements are made case by case. For example, if the student has an illness and an excused absence for 2 days (the day of the exam plus the next day), then the student is allowed 2 calendar (2) days, and the make-up exam must be taken by the end of the 3rd day. If the excused absence includes days before the exam such that lectures were missed, then see the instructor for a case-by-case decision to allow sufficient time to view the videos of the missed lectures. If the excused absence is for a planned event, such as sponsored activity, and no lectures are missed, then the student may take the exam before departure if feasible, a Zoom proctored exam may be administered at an arranged time on the day of the exam while on the trip. Notification of missing an exam must by the timeline stated above, but written documentation of the excused absence can be turned-in at the time of the make-up exam. Make-up may be a different, but comparable exam. **Any exam missed without following the Student Rules will result in a grade of 0** (unless there are extraordinary extenuating circumstances, and in such cases, you must appeal directly to the instructor). Any unexcused missed exam will be given a grade of 0. **If all this seems confusing, that is why I want you to call me, so I can verify your excuse and explain to you the make-up options.**

Student Comments: I am extremely receptive to student comments, both positive and negative. Leave me a note on the podium or have a friend send me an email if you want to be anonymous.

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” ([Section 20.1.2.3, Student Rule 20](#)). You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible. Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking. With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student’s academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

LECTURE OUTLINE AND EXAM TIMING

Number Lectures	<i>Horticulture: Science and Practices, Reed</i>	<i>The Biology of Horticulture, Preece and Read</i>	Topic
PART I - BASICS OF HORTICULTURE			
1	pages 1-2	Chapter 1	Introduction and Definition of Horticulture
3	pages 3-20	Chapter 3	Plant Anatomy, Morphology & Development Vegetative & Reproductive
3	pages 21-29	Chapter 5	Plant Metabolism and Functioning Photosynthesis & Respiration
1st EXAM			
PART II - ENVIRONMENT IN HORTICULTURE			
2	pages 30-32	Chapter 11 & 12	Hormones and Growth Regulators Manipulating Plant Growth
2	pages 33-49	Chapter 6	Temperature Cardinal Temperatures, Chilling & Freezing Damage & Prevention, Stratification, Vernalization, Dormancy
2	pages 50-59	Chapter 5	Light Effects of Quantity & Quality, Light Measurement, Photoperiodism, Light Acclimatization
2nd EXAM			
2	pages 60-66	Chapter 7	Water Humidity, Precipitation, Soil Water, Irrigation Systems, Absorption Translocation, and Transpiration
2	pages 67-73	Chapter 8 & 10	Soil & Growing Medium Types, Components, Chemical & Physical Properties
2	pages 74-80	Chapter 9	Nutrition and Fertilizers Essential Elements, Functions, Deficiency Symptoms, Fertilizer Sources
3rd EXAM			
PART III- HORTICULTURAL PRINCIPLES AND PRACTICES			
2-3	pages 81-93	Chapter 4 & 14	Propagation Sexual by Seeds; Asexual by Cuttings, Layering, and Grafting; Chimeras
1	pages 94-96	Chapter 13	Growth Control Pruning Methods and Terminology, Chemical Pruning, Timing of Pruning
1	pages 97-100	Chapter 16	Pest and Pest Control Pest Control, IPM, Biological Control, Pest Types - Insects, Mites, Disease Causing Microbes, Weeds
4th EXAM			
FINAL EXAM - COMPREHENSIVE			



Team and Individual Projects to Satisfy Core Objectives

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Student Learning Outcomes for Life and Physical Sciences

Visual, Oral and Written Communication and Teamwork

Team Projects:

Project 1: Visual Communication: **Design** and **create** a visual model or artifact (up to 4 points)

Project 2: Oral Communication: **Collaborate** to produce a video to **role-play teaching** and **explaining** the model or artifact (up to 4 points)

Individual Project

Project 3: Written Communication: **Write/Rewrite** a Reflective Essay on a learning experience in class or team project that allowed a greater depth of understanding. (up to 4 points)

Optional Bonus Points:

All projects are optional and for bonus points (added to sum of exams that contribute to your grade)

You cannot be penalized for choosing to not participate in the projects.

Each student can participate and complete any or all three Projects.

Teams

The class would be divided randomly into teams of 5-6 members. The team members must work together to complete the Visual and Oral Communication model/artifact and the video. Team members will be graded on participation. Team member will anonymously score each other: >50% to full effort receives all points awarded to the project, >0 and <50% effort receives half points, and no participation receives no points.

Pre-Review/Critique/Rewrite and chance for correction/revision/rewrite

Teams or individuals can submit a draft of the artifact, model or essay to the instructor to review and critique, then the team or person can prepare the final draft or model for submission. Only one critique can be sought.

Team Project 1 Visual Communication (up to 4 points)

Design and create a visual model or artifact

Complete either Option 1 or Option 2, but not both

Option 1: Convert a 2-dimensional diagram into a 3-dimensional model or artifact of an anatomical structure.

The plant anatomy and morphology lectures are based entirely on 2-dimensional drawings (pages 1-20). To demonstrate one's ability to visualize the structure in 3-dimension, the team will select any of the 2-dimensional diagrams in the text, then design and create a 3-dimensional model or artifact. The model or artifact will be scored for 3D, scientific accuracy, clarity of representation and professionalism. Team members will be graded on participation. Integrate the names of team members involved in the project directly on the artifact or submit a separate document. Names also can be entered into Canvas at the time of submission.

Submission: On behalf of the entire team, only one team member submits pics of the 3-D model to Canvas. Submit pictures of the 3-D model from several angles to show all parts in all dimensions. Pics must show all the labels clearly readable. When submitted to Canvas, list the names of the team members that were involved in the project. If you have difficulty or complications preventing submission to Canvas, you can bring directly to me the model or a USB stick that includes the file(s). DO NOT submit the file to Google docs.

Rubric

The 3D model will be scored for 3D, complete clear and professional labelling, scientific accuracy, and basically is it a reasonable representation of the actual plant part. The model can be constructed of any suitable material (paper, clay, wood, boxes, metal, styrofoam, food, containers, I even had one constructed from a half-ton round bale of hay).

The Rubric scale will be:

- 4 points – first and foremost the 3D model truly is a 3D representation of the structure, e.g., it reveals the dimensions of width, length and height (the 2-D diagrams in the book have only width and length); all parts included and properly and clearly labelled; scientifically accurate; it is a clear and reasonable representation; and appears professional and would be acceptable for a presentation.
- 2 points – the model is not 3D, some parts not present or inaccurately represented, some parts not labelled or labels not professional looking.
- 0 points – a model is not submitted, or if it is deficient in 3 or more of the above rubric grading characteristics.

Option 2: Convert Narrative information into a visual artifact that fits a visual learning style.

The individual team member will take any topic from throughout the text that is presented as narrative and create a visual method of presentation. The artifact could be a comparison and contrast matrix (example p. 18, 29), a diagram or one PowerPoint image/slide (example page 34, 62), a virtual model, a drawing, labelled visual image, etc. The team could take a visual diagram or drawing in the text and present it in an original and uniquely different presentation. If you use PowerPoint to create the visual artifact, DO NOT submit a Power Point presentation, only one PowerPoint slide. Integrate the names of team members involved in the project directly on the artifact, pic of names on a separate document, or list in Canvas upon submission.

Submission: On behalf of the entire team, only one team member submits to Canvas a single electronic file of the drawing, diagram, graph, pic, virtual image, PDF, single PowerPoint image/slide, or comparison and contrast matrix. The artifact must be in a file format that can be read on a standard computer with standard software. When submitted to Canvas, list the names of the team members that were involved in the project. If you have difficulty or complications submitting to Canvas, you can bring directly to me a USB stick that includes the file(s). DO NOT submit the file to Google docs.

Rubric

The artifact will be scored for learning style indicated, accurate and complete labelling, scientific accuracy, and basically is it a reasonable representation of the narrative description.

The Rubric scale will be:

- 4 points – first and foremost the narrative in the text is presented as an artifact that fits the visual learning style. The artifact has all parts properly and clearly labelled; is scientifically accurate; it is a clear representation; and appears professional and would be acceptable for a presentation.
- 2 points - must be a single standalone artifact, such as a single drawing, matrix or PowerPoint slide and not multiple pages or multiple slides; some parts not present or inaccurately represented, some parts not labelled or labels not professional looking.
- 0 points – an artifact is not submitted, or if it is deficient in at least 3 of the above rubric grading characteristics.

Team Project 2: Oral Communication (up to 4 points)

Collaborate to produce a video to role-play teaching and explaining the model or artifact

The team will prepare a short video, up to approximately 3 minutes, to present and explain their 3D model or visual artifact from Option 1 or 2. A video taken with cell phones is sufficient. Basically, consider the video as a mini lecture to a class and the team members are the teachers. Every team member must be part of the oral presentation. Team members must clearly introduce themselves when they start their portion of the presentation. If possible, add a graphic to the video with participating team member's names. Team members will be graded on participation.

Submission: On behalf of the entire team, only one team member submits to Canvas the video file. The video file must be under 5MB. If you have difficulty or complications submitting to Canvas, you can bring directly to me a USB stick that includes the video file. DO NOT submit the file to Google docs.

Rubric

The video will be scored for all team members with a speaking part, clarity of video and audio, visual presentation shows each speaker's face and clearly shows each team member pointing to and explaining parts of the model or artifact, aspects of the model are revealed to the viewer; including all labels; and scientific accuracy:

The Rubric scale will be:

- 4 points – each speaker introduces themselves then presents a clear audible and visual presentation of some part of the artifact or model, all parts and angles of the model are pointed out and explained by the speakers, all comments are scientifically accurate
- 2 points – speakers are not identified, the video and/or audio is not clear, the viewer cannot see all parts of the model or the artifact, the presentation is not professional or scientifically accurate, the video does not show the face of every presenter sometime in the video.
- 0 points - a video is not submitted, or if it is deficient in at least 3 of the above rubric grading characteristics.

Individual Project 3: Written Communication (up to 4 points)

Write/Rewrite a Reflective Essay on a learning experience in class or team project that allowed a greater depth of understanding.

Each student will have the option to write a short reflective essay (200-500 words, 1-page typed max). The reflective essay can be on any science topic covered in the class or on the student's experience on team Project 1 or 2. Note, the essay is not a team project, but the essay can be written about the team experience. The reflective essay should address how the learning experience yielded a greater and more in depth understanding of the scientific principle or artifact produced by the project. Consider how you have changed, developed or grown from the experience to come to a better understanding and/or appreciation of science.

Submission:

Each student will submit their essay as a Word document to Canvas. If you have difficulty or complications submitting to Canvas, you can bring directly to me a USB stick that includes the file. DO NOT submit the essay to Google docs.

Rubric

The essay will be scored with a standard rubric first and foremost is it reflective, for grammar, spelling, sentence structure, etc., scientific accuracy and clarity of the explanation. The essays will be worth up to 4 points.

The Rubric scale will be:

- 4 points - for an acceptable, conscientious and adequate essay that demonstrates personal reflection, expresses a greater depth of understanding, and that is grammatically correct, correct spelling, and good sentence structure, and is on a topic covered in class.

2 points - clearly needs improvement; is not reflective, lacks in-depth understanding of the science topic, has grammatical and spelling errors, or appears that ‘little thought’ was put into the essay.

0 points - if an essay is not reflective, is deemed insufficient in several of the above characteristics, is on a topic not covered in the course, or is not submitted.

Deadline for All Projects

The final due date for all projects will be shortly after the 3rd Exam. By that time, the student should know if bonus points would be helpful. The exact day and time are TBA. This will be a hard deadline in Canvas. No project will be accepted late, not even a couple minutes. But projects can be completed and submitted any time prior to the deadline. In fact, it would be advisable to complete and submit the projects well before the deadline.

DO NOT wait until the last minute in case you have computer or Wi-Fi problems.

Project 1 and 2 – only one team member submits the project to Canvas on behalf of the entire team.

Project 3 – each individual students submits to Canvas their own essay document.